

## REMARKS

The rejections under 35 U.S.C. 112 have been obviated by amendment to claims 3 and 4.

Claims 1-11 have been rejected over Amerman, et al., in view of Bloor, et al., Scholl, and Parker, et al., alleging that it would be obvious to form the Amerman et al., pipes with integral web portions in view of Bloor, et al., "for either a reduction in material cost (Bloor, et al.) or for stronger structure in case of continuous webs."

This rejection is respectfully traversed.

The Amerman, et al., pipes 40 of Figs. 5A, 5B and 5C, pipes 150 and 154 of Figs. 8A and 8B and pipe 202 of Fig. 11 are pipes which are rolled up on a reel as shown in Figs. 7B, 7D and 13 of Amerman et al., for installation in the ground. Conversely, the heat exchanger pipes of the three secondary references are not installed in this way and there is no teaching of rolling or unrolling them on a reel as in Amerman, et al.

There is no need in Amerman, et al., for "as stronger structure in case of continuous webs" as allegedly taught by Bloor, et al. The Amerman pipes are clearly strong enough to do what he wants to do with them. In Figs. 5A, 5B and 5C of Amerman, et al., a web between pipes 40 would prevent the use of grout pipe 41.

In all of the secondary references, the web between pipes is for the purpose of equally spacing adjacent pipes and allowing for modular installation of these solar heat exchanger pipes, instead of merely installing each pipe individually. This purpose does not exist in Amerman, et al., and would unduly increase the cost of the Amerman, et al., pipes for no reason recognized by Amerman, et al. There is no motivation to one of ordinary skill in the art at the time this invention was made to combine the references as proposed in the rejection.

In Bloor, et al., all of the pipes 15 have fluid in them of substantially the same temperature. The pipes 15 all gather heat from the sun when used for heating. This heat is collected by bringing in colder liquid in manifold pipe 12 directing the cold liquid through web connected pipes 15 to manifold pipe 13. The cold liquid goes in pipe 12 and out pipe 13, being heated by substantially the same amount in each one of the web connected pipes 15. This is fundamentally different than what is happening in Amerman, et al. In Amerman, et al., the adjacent inlet and outlet pipes correspond to pipes 12 and 13 of Bloor, et al., not adjacent web

connected pipes 15 of Bloor, et al. The teaching of Bloor, et al., is to teach connecting a web between pipes of a heat exchanger which are all gathering heat or all giving up heat, not between two pipes containing a liquid of different temperatures like that of Amerman, et al. To provide this proposed teaching, there must be a web between pipes 12 and 13 of Bloor, et al., not between adjacent pipes 15. This same argument applies to the proposed modification of Amerman, et al., by secondary references Parker, et al., and Scholl. There is no web taught between hot/cold pipes 20/21 of Parker, et al., or the inlet of pipe 43 with the outlet of pipe 43 of Scholl. All of the pipes connected together by webs are for liquid of the same temperature. The web is not for keeping heat from being exchanged by adjacent pipes as in the instant claimed invention.

Amerman, et al., does not acknowledge any problem of undesirable exchange of heat between the inlet pipe (like pipe 12 of Bloor, et al) and his outlet pipe—the one like pipe 13 of Bloor, et al.

None of the four references used in this rejection recognize the problem that is solved by the instant invention, problem being the undesirable exchange of heat between the underground inlet pipe and the underground outlet pipe. This problem is solved by the instant invention by providing an integral spacing web to keep the inlet and outlet pipe a predetermined distance apart in the ground so that the heat is exchanged between the ground and the liquid in each respective pipe and not between the fluid in the inlet and outlet pipes themselves.

In summary, it would not be obvious to make the proposed modifications to Amerman, et al., because none of the references recognize a reason to do so. They are oblivious to the problem so have no motivation to provide a solution to it. The secondary references teach webbed attachment of adjacent pipes in a solar system, not an underground system. The secondary references have no rolled webbed pipes and no webbed pipes where there is any concern for exchange of heat between them. Despite the fact that all of the four prior art references are in the heat exchanger field, the web connected pipes of the secondary references is non analogous art because the web does not connect hot/cold pipes to prevent heat exchange between them. Instead, the web of the secondary references teach connecting pipes of a heat exchanger that are at approximately the same temperature where an exchange of heat between

adjacent web connected pipes does not matter, the web between pipes being there for modular construction reasons for a solar system above ground.

Claim 7 has been amended and new claims 12-14 have been added.

Accordingly, since claims 1-14 are believed to be clearly allowable, a notice to that effect is earnestly solicited.

Respectfully submitted,

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Date

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